Supporting Information

Hollow silver-gold alloy nanoparticles for enhanced photothermal/photodynamic synergetic therapy against bacterial infection and acceleration of wound healing

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1. Calculation of photothermal conversion efficiency

$$\theta = \frac{T - T_{surr}}{T_{max,\,NP} - T_{surr}} \#Formula\ (1)$$

$$t = -\tau_s \ln(\theta) \#Formula\ (2)$$

$$hs = \frac{m_D c_D}{\tau_s} \#Formula\ (3)$$

$$\eta = \frac{hs\left(\Delta T_{NP} - \Delta T_{PBS}\right)}{I\left(1 - 10^{-A_{808}}\right)} \times 100\% \#Formula\ (4)$$

Here, the concentration of Ag@Au-Ce6 NPs is 1 nM. $T_{max,NP}$ is the maximum temperature of Ag@Au-Ce6 NPs after irradiation for 5 min and T_{surr} is the surrounding enviornment temperature. τ_s is the slope of fitting curve, here the value is 380.31. m_D and c_D represent the mass and specific heat capacity of Ag@Au-Ce6 NPs. ΔT_{NP} represents the temperature changes of Ag@Au-Ce6 NPs, ΔT_{PBS} is the temperature changes of PBS solution, and A_{808} means the absorbance value. The photothermal conversion efficiency is 33.2% through the calculation.

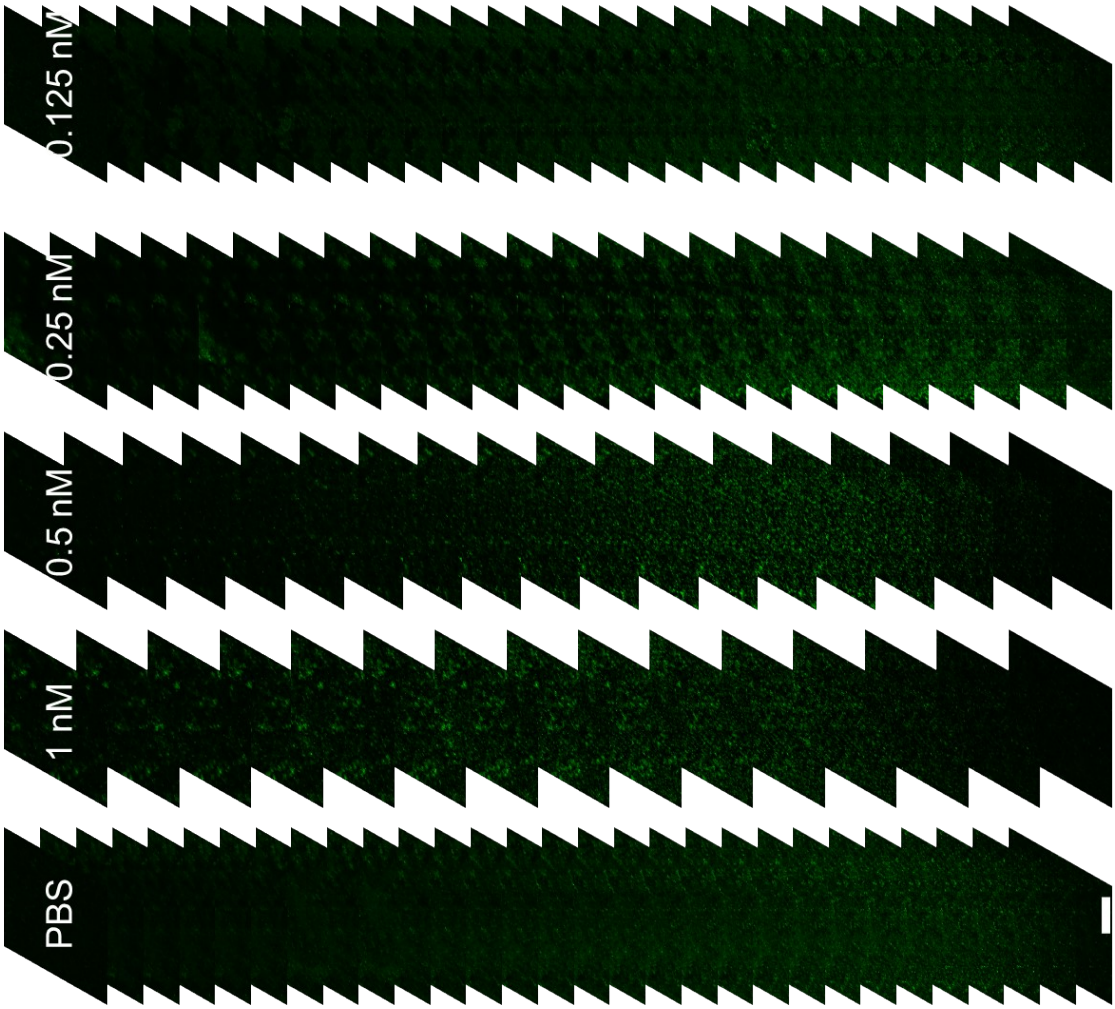

Fig. S1 Layer-by-layer CLSM images of the final formed *S. aureus* biofilm after the confrontation of Ag@Au-Ce6 NPs with the formed biofilm for different treating time.

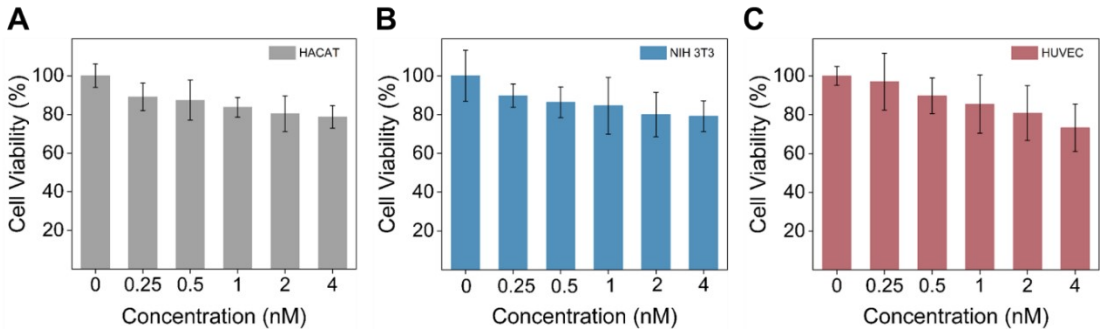

Fig. S2 CCK8 assay results show cell viability after treatment with various concentrations of Ag@Au-Ce6. A: HACAT (Human dermal keratinocyte) B: NIH 3T3 (mice embryonic fibroblast cells) C: HUVEC (Human umbilical vein endothelial cells)

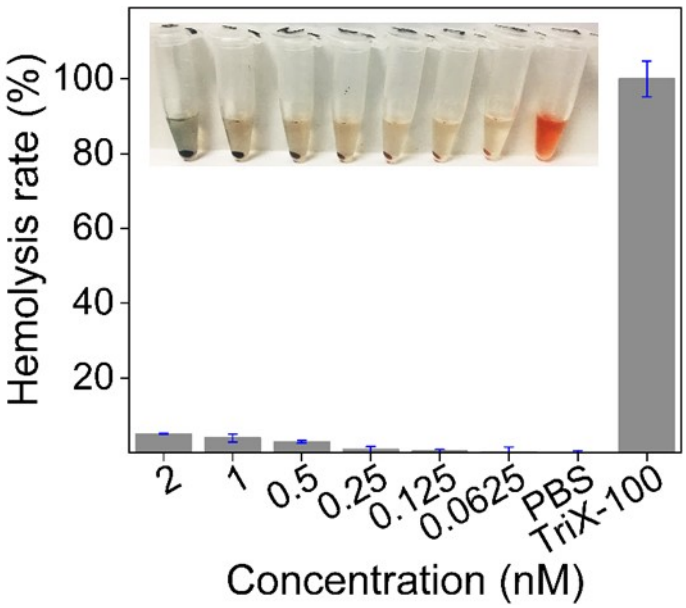

Fig. S3 Hemolysis rate results of gradient concentration of Ag@Au-Ce6 NPs in mouse blood samples. Inset shows a representative photograph of the results after centrifugation. PBS used as a negative control while triton-x as a positive control.

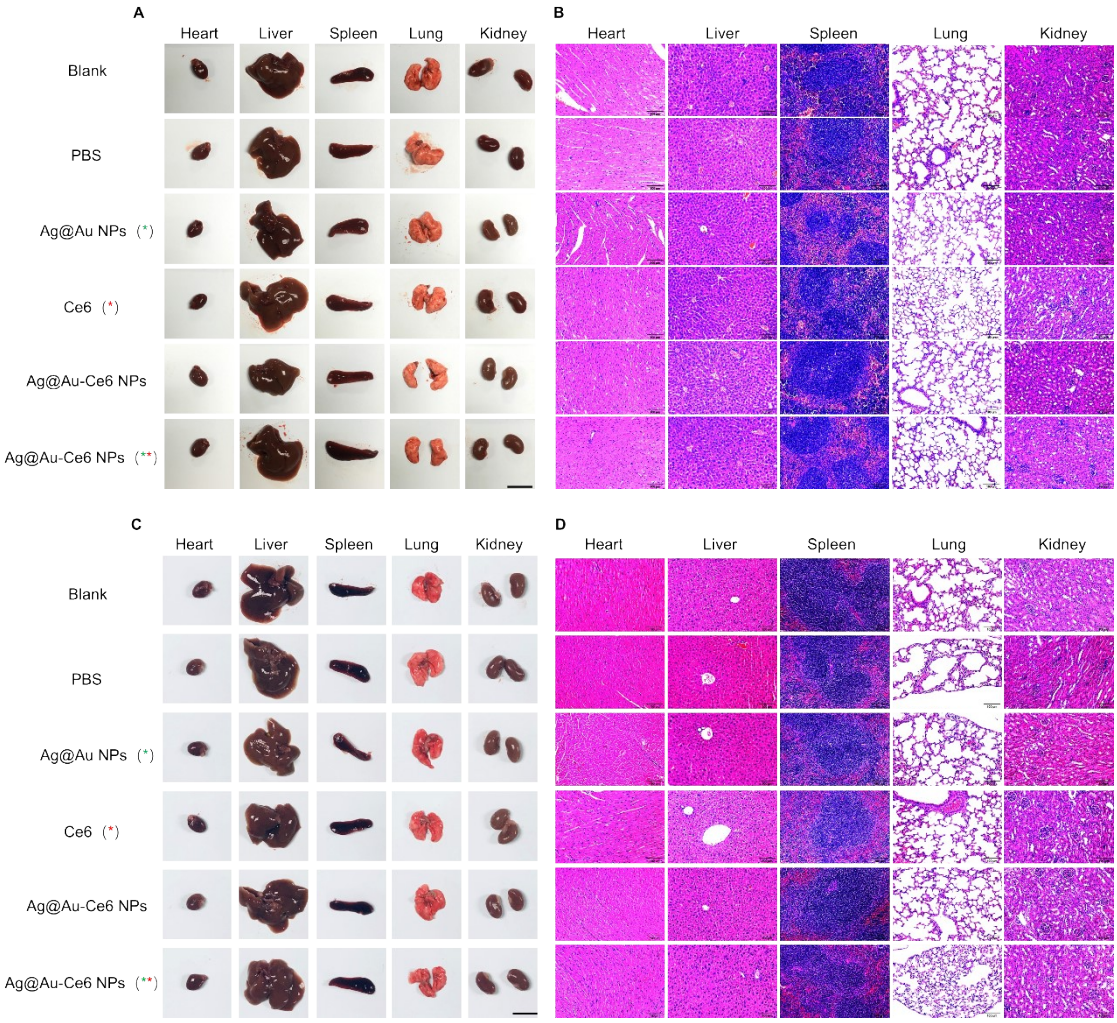

Fig. S4 Photographs of main organs of mice and corresponding HE staining images. (A) and (B) are the experimental group of *S. aureus*, and (C) and (D) are the experimental group of *E. coli*. Scale bar of major organs: 1 cm; scale bar of HE staining images: 1 μm.